and Animal Science, Swedish University of Agricultural Sciences, Uppsala, Sweden

Strangles, a very contagious disease, is caused by *Streptococcus equi* subsp. *equi (S equi).* The aim was to study if asymptomatic horses carrying *S. equi* in their guttural pouches could be identified by serology. Thirty-seven horses from 5 farms that showed positive results for *S equi* by real-time PCR [1-2] in samples from their guttural pouches once (n=18) or several times (n=19) after the clinical signs of strangles had subsided were included, resulting in 66 sampling occasions. The time to samplings was 1-23 months from the start of an acute outbreak in their stable (50 samples) or entering a stable with known carriers of *S equi* (16 samples). Serum antibodies against antigens A and C from *S. equi* was examined by iELISA with a cutoff of OD >0.5 (Dr Andrew Waller, Animal Health Trust, Newmarket [3]). The results showed that at the recommended cut-off of OD 0.50, 10 horses were positive to both antigen A and C included in the test, 13 horses only to antigen A, 17 horses only to antigen C and 26 horses were seronegative. The sensitivity for the iELISA to detect guttural pouch carriers of *S equi* was 61% with a cut-off of OD 0.50, and 73% with a cut-off of OD 0.30. Interestingly, some horses went to become carriers without passing a stage of overt clinical disease. In conclusion, serology may be of help to identify asymptomatic carriers when using a cut-off value of OD >0.3.

Acknowledgements

The Animal Healh Trust is gratefully acknowledged for the iELISA antigens.

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Serological survey of some major equine viral diseases in the Eastern Caribbean

P. Bolfa*[1], I. Jeon [1], D. Wilson [1], B. Thomas [1], A. Loftis [1], T. Leslie [2], S. Marchi*[1], C. Issel [3]
[1] *Ross University School of Veterinary Medicine, Basseterre, St. Kitts, West Indies;* [2] *Eastern Caribbean Public Health Foundation, Sint Eustatius;* [3] *University of Kentucky Lexington, KY, USA*

There is a relative dearth of sound data on the prevalence of major equine infectious diseases in the Caribbean Basin. To begin to address this, we analyzed banked serums from 180 equines (40 donkeys and 140 horses), mean age 6.3 years collected between 2006 and 2015. Samples originated from 3 different islands in the Leeward group (St Kitts, Nevis and Sint Eustatius) and were tested for antibodies against several equine viral diseases notifiable to the World Organization for Animal Health in licensed and commercially available ELISA test kits. Kits for the detection of antibodies against Equine Infectious Anemia (EIA), Equine Arteritis (EA), Equine Influenza (EI), Equine Herpes Virus (EHV) 1 and 4, and West Nile (WNV) were used. All samples were EIA test-negative. Only 1 animal (0.57%) a donkey, female, 4 years old from Sint Eustatius was positive for EAV. A total of 49 equines (27%) of which 1 donkey and 48 horses, mean age 7.5 years were positive for Equine Influenza. A total of 39 equines (24%) including 4 donkeys and 35 horses, mean age 6.7 years were positive for EHV1. For EHV4, serological testing revealed a total of 138 positives equines (83%) of which 18 donkeys and 120 horses, mean age 6.3 years. A total of 32 equines (18%) of which 6 donkeys and 26 horses, mean age 6.5 years were positive for WNV. The immunization history of most horses was not available to us, but we suspect some of the racing horses may have been immunized against EI and EHV. Donkeys as well as some horses previously used for teaching purposes had no history of vaccination for any of the tested diseases. Prevalence for both EHV1 and EHV4 was similar to previous reports from other parts of the world, confirming the presence of these 2 viruses in equines around the world. There is no official report of WNV in humans in the tested islands; however, other flaviviruses such as Dengue have been reported and several mosquito species known as vectors for WNV as well as migratory birds that travel between North America and the Caribbean are known to be present in the areas from where the samples were collected. Taken together, this study documents serologic evidence of several major equine viral diseases in the area of Eastern Caribbean. Further studies are needed to define the presence and rates of transmission, to characterize local virus strains, and to study their impact on these populations.

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Determining optimal sampling site for *Streptococcus equi* subsp *equi* carriers using loop-mediated isothermal (LAMP)

A.G. Boyle*[1], D. Stefanovski [1], S.C. Rankin [2]
[1] *University of Pennsylvania, School of Veterinary Medicine, Department of Clinical Studies New Bolton Center, Kennett Square, PA, USA;* [2] *Department of Clinical Studies Philadelphia, PA, USA*

We hypothesized guttural pouch sampling would be more sensitive than the nasopharynx to identify carriers of *Streptococcus equi* (*S. equi)* and that the *eqbE* LAMP assay would be more sensitive than real time *SeeI* polymerase chain reaction (PCR). Three samples were collected from each horse previously infected with *S. equi*: nasopharyngeal flocked nylon swab (NPFS), nasopharyngeal wash (NPW), and endoscopically-guided guttural pouch lavage (GPL). The following tests were performed: NPFS LAMP assay for *S. equi*, NPW LAMP assay for *S. equi*, GPL (split into 3 aliquots: *S. equi* culture, *SeeI* PCR, LAMP assay). Logistic regression and area under the receiver-operator curve were performed using STATA 13. *P*-values ≤ 0.05 were considered significant. 1/41 NPFS, 6/38 NPW and 24/44 GPL samples were positive by *eqbE* LAMP from 44 *S. equi* convalescent horses. 18/44 GPL were positive with *seeI* PCR. *S. equi* was isolated from 4/44 GPL samples. GPL was the best sample to detect carriers compared to NPFS (OR 48.0, P<0.001) and NPFS (OR 6.4, P=0.001). Sensitivity and specificity of *eqbE* LAMP GPL samples when compared to the presence of guttural pouch empyema were 92% and 61%: ROC=0.80, 70% were correctly classified. Sensitivity and specificity of *SeeI* PCR GPL samples was 92% and 80: ROC=0.92, 84% correctly classified. Sensitivity and specificity of GPL *eqbE* LAMP was 83% and 65% compared to GPL *seeI* PCR: ROC=70, 73% correctly classified. Our study demonstrates that GPL should be used to detect *S. equi* carriers and LAMP PCR was comparable to *SeeI* PCR.